any employment and place of employment in any industry, even though particular standards are also prescribed for the industry, as in subpart B or subpart R of this part, to the extent that none of such particular standards applies. To illustrate, the general standard regarding noise exposure in §1910.95 applies to employments and places of employment in pulp, paper, and paperboard mills covered by §1910.261.

- (d) In the event a standard protects on its face a class of persons larger than employees, the standard shall be applicable under this part only to employees and their employment and places of employment.
  - (e) [Reserved]
- (f) An employer who is in compliance with any standard in this part shall be deemed to be in compliance with the requirement of section 5(a)(1) of the Act, but only to the extent of the condition, practice, means, method, operation, or process covered by the standard.

[39 FR 23502, June 27, 1974, as amended at 58 FR 35308, June 30, 1993]

## § 1910.6 Incorporation by reference.

- (a)(1) The standards of agencies of the U.S. Government, and organizations which are not agencies of the U.S. Government which are incorporated by reference in this part, have the same force and effect as other standards in this part. Only the mandatory provisions (i.e., provisions containing the word "shall" or other mandatory language) of standards incorporated by reference are adopted as standards under the Occupational Safety and Health Act.
- (2) Any changes in the standards incorporated by reference in this part and an official historic file of such changes are available for inspection in the Docket Office at the national office of the Occupational Safety and Health Administration, U.S. Department of Labor, Washington, DC 20910; telephone: 202–693–2350 (TTY number: 877–889–5627).
- (3) The materials listed in paragraphs (b) through (w) of this section are incorporated by reference in the corresponding sections noted as they exist on the date of the approval, and a notice of any change in these materials

will be published in the FEDERAL REGISTER. These incorporations by reference were approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51.

- (4) Copies of standards listed in this section and issued by private standards organizations are available for purchase from the issuing organizations at the addresses or through the other contact information listed below for these private standards organizations. In addition, these standards are available for inspection at any Regional Office of the Occupational Safety and Health Administration (OSHA), or at the OSHA Docket Office, U.S. Department of Labor, 200 Constitution Avenue NW., Room N-2625, Washington, DC 20210; telephone: 202-693-2350 (TTY number: 877-889-5627). They are also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of these standards at NARA, telephone: 202–741–6030, or go to http:// www.archives.gov/federal register/ code\_of\_federal\_regulations/  $ibr \overline{locations.html}$ .
- (b) The following material is available for purchase from the American Conference of Governmental Industrial Hygienists (ACGIH), 1014 Broadway, Cincinnati OH 45202:
- (1) "Industrial Ventilation: A Manual of Recommended Practice" (22nd ed., 1995), incorporation by reference (IBR) approved for §1910.124(b)(4)(iii).
- (2) Threshold Limit Values and Biological Exposure Indices for 1986-87 (1986), IBR approved for §1910.120, PEL definition.
- (c) The following material is available for purchase from the American Society of Agricultural Engineers (ASAE), 2950 Niles Road, Post Office Box 229, St. Joseph, MI 49085:
- (1) ASAE Emblem for Identifying Slow Moving Vehicles, ASAE S276.2 (1968), IBR approved for §1910.145(d)(10).
- (2) [Reserved]
- (d) The following material is available for purchase from the Agriculture Ammonia Institute-Rubber Manufacturers (AAI-RMA) Association, 1400 K St. NW, Washington DC 20005:
- (1) AAI-RMA Specifications for Anhydrous Ammonia Hose, IBR approved for §1910.111(b)(8)(i).

- (2) [Reserved]
- (e) Except as noted, copies of the standards listed below in this paragraph are available for purchase from the American National Standards Institute (ANSI), 25 West 43rd Street, 4th Floor, New York, NY 10036; telephone: 212-642-4900; fax: 212-398-0023; Web site: http://www.ansi.org.
  - (1)-(2) [Reserved]
- (3) ANSI A11.1-65 (R 70) Practice for Industrial Lighting, IBR approved for §§ 1910.219(c)(5)(iii); 1910.261 (a)(3)(i), (c)(10), and (k)(21); and 1910.265(c)(2).
- (4) ANSI A11.1-65 Practice for Industrial Lighting, IBR approved for §§ 1910.262(c)(6) and 1910.265(d)(2)(i)(a).
  - (5) [Reserved]
- (6) ANSI A13.1-56 Scheme for the Identification of Piping Systems, IBR approved for  $\S101.253(d)(4)(ii)$ ; 1910.261(a)(3)(iii); 1910.262(c)(7).
- (7) ANSI A14.1-68 Safety Code for Portable Wood Ladders, Supplemented by ANSI A14.1a-77, IBR approved for §1910.261 (a)(3)(iv) and (c)(3)(i).
- (8) ANSI A14.2-56 Safety Code for Portable Metal Ladders, Supplemented by ANSI A14.2a-77, IBR approved for §1910.261 (a)(3)(v) and (c)(3)(i).
- (9) ANSI A14.3-56 Safety Code for Fixed Ladders, IBR approved for  $\S 1910.68(b)$  (4) and (12); 1910.179(c)(2); and 1910.261 (a)(3)(vi) and (c)(3)(i).
- (10) ANSI A17.1-65 Safety Code for Elevators, Dumbwaiters and Moving Walks, Including Supplements, A17.1a (1967); A17.1b (1968); A17.1c (1969); A17.1d (1970), IBR approved for §1910.261 (a)(3)(vii), (g)(11)(i), and (l)(4).
- (11) ANSI A17.2-60 Practice for the Inspection of Elevators, Including Supplements, A17.2a (1965), A17.2b (1967), IBR approved for §1910.261(a)(3)(viii).
- (12) ANSI A90.1–69 Safety Standard for Manlifts, IBR approved for  $\S 1910.68(b)(3)$ .
- (13) ANSI A92.2-69 Standard for Vehicle Mounted Elevating and Rotating Work Platforms, IBR approved for §1910.67 (b)(1), (2), (c)(3), and (4) and 1910.268(s)(1)(v).
- (14) ANSI A120.1-70 Safety Code for Powered Platforms for Exterior Building Maintenance, IBR approved for §1910.66 app. D (b) through (d).
- (15) ANSI B7.1-70 Safety Code for the Use, Care and Protection of Abrasive

- Wheels, IBR approved for §§ 1910.215(b)(12) and 1910.218(j).
- (16) ANSI B15.1-53 (R 58) Safety Code for Mechanical Power Transmission Apparatus, IBR approved for §§ 1910.68(b)(4) and 1910.261 (a)(3)(ix), (b)(1), (e)(3), (e)(9), (f)(4), (j)(5)(iv), (k)(12), and (1)(3).
- (17) ANSI B20.1–57 Safety Code for Conveyors, Cableways, and Related Equipment, IBR approved for §§ 1910.218(j)(3); 1910.261 (a)(3)(x), (b)(1), (c)(15)(iv), (f)(4), and (j)(2); 1910.265(c)(18)(i).
- (18) ANSI B30.2-43 (R 52) Safety Code for Cranes, Derricks, and Hoists, IBR approved for \$1910.261 (a)(3)(xi), (c)(2)(vi), and (c)(8) (i) and (iv).
- (19) ANSI B30.2.0-67 Safety Code for Overhead and Gantry Cranes, IBR approved for \$1910.179(b)(2); 1910.261 (a)(3)(xii), (c)(2)(v), and (c)(8) (i) and (iv).
- (20) ANSI B30.5-68 Safety Code for Crawler, Locomotive, and Truck Cranes, IBR approved for §§ 1910.180(b)(2) and 1910.261(a)(3)(xiii).
- (21) ANSI B30.6-69 Safety Code for Derricks, IBR approved for §§ 1910.181(b)(2) and 1910.268(j)(4)(iv) (E) and (H).
- (22) ANSI B31.1-55 Code for Pressure Piping, IBR approved for §1910.261(g)(18)(iii).
- (23) ANSI B31.1-67, IBR approved for §1910.253(d)(1)(i)(A)
- (24) ANSI B31.1a-63 Addenda to ANSI B31.1 (1955), IBR approved for §1910.261(g)(18)(iii).
- (25) ANSI B31.1–67 and Addenda B31.1 (1969) Code for Pressure Piping, IBR approved for \$\\$1910.103(b)(1)(iii)(b); 1910.104(b)(5)(ii); 1910.218 (d)(4) and (e)(1)(iv); and 1910.261 (a)(3)(xiv) and (g)(18)(iii).
- (26) ANSI B31.2–68 Fuel Gas Piping, IBR approved for §1910.261(g)(18)(iii).
- (27) ANSI B31.3-66 Petroleum Refinery Piping, IBR approved for §1910.103(b)(3)(v)(b).
- (28) ANSI B31.5-66 Addenda B31.5a (1968) Refrigeration Piping, IB approved for §§1910.103(b)(3)(v)(b) and 1910.111(b)(7)(iii).
- (29) ANSI B56.1-69 Safety Standard for Powered Industrial Trucks, IBR approved for  $\S 1910.178(a)$  (2) and (3) and 1910.261 (a)(3)(xv), (b)(6), (m)(2), and (m)(5)(iii).

- (30) ANSI B57.1-65 Compressed Gas Cylinder Valve Outlet and Inlet Connections, IBR approved for §1910.253(b)(1)(iii).
  - (31) [Reserved]
- (32) ANSI B175.1–1991, Safety Requirements for Gasoline-Powered Chain Saws 1910.266(e)(2)(i).
  - (33) [Reserved]
- (34) ANSI C33.2-56 Safety Standard for Transformer-Type Arc Welding Machines, IBR approved for §1910.254(b)(1).
  - (35) [Reserved]
- (36) ANSI H23.1-70 Seamless Copper Water Tube Specification, IBR approved for §1910.110(b) (8)(ii) and (13)(ii)(b)(1).
- (37) ANSI H38.7–69 Specification for Aluminum Alloy Seamless Pipe and Seamless Extruded Tube, IBR approved for §1910.110(b)(8)(i).
- (38) ANSI J6.4-71 Standard Specification for Rubber Insulating Blankets, IBR approved for \$1910.268 (f)(1) and (n)(11)(v).
- (39) ANSI J6.6-71 Standard Specification for Rubber Insulating Gloves, IBR approved for §1910.268 (f)(1) and (n)(11)(iv).
- (40) ANSI K13.1-67 Identification of Gas Mask Canisters, IBR approved for §1910.261 (a)(3)(xvi) and (h)(2)(iii).
- (41) ANSI K61.1-60 Safety Requirements for the Storage and Handling of Anhydrous Ammonia, IBR approved for §1910.111(b)(11)(i).
- (42) ANSI K61.1-66 Safety Requirements for the Storage and Handling of Anhydrous Ammonia, IBR approved for §1910.111(b)(11)(i).
- (43) ANSI O1.1-54 (R 61) Safety Code for Woodworking Machinery, IBR approved for §1910.261 (a)(3)(xvii), (e)(7), and (i)(2).
- (44) ANSI S1.4-71 (R 76) Specification for Sound Level Meters, IBR approved for §1910.95 appendixes D and I.
- (45) ANSI SI.11-71 (R 76) Specification for Octave, Half-Octave and Third-Octave Band Filter Sets, IBR approved for §1910.95 appendix D.
- (46) ANSI S3.6-69 Specifications for Audiometers, IBR approved for \$1910.95(h)(2) and (5)(ii) and appendix D.
- (47) ANSI Z4.1-68 Requirements for Sanitation in Places of Employment, IBR approved for §1910.261 (a)(3)(xviii) and (g)(15)(vi).
  - (48) [Reserved]

- (49) ANSI Z9.1–51 Safety Code for Ventilation and Operation of Open Surface Tanks, IBR approved for 1910.261(a)(3)(xix), (g)(18)(v), and (h)(2)(j).
- (50) ANSI Z9.1–71 Practices for Ventilation and Operation of Open-Surface Tanks, IBR approved for §1910.124(b)(4)(iv).
- (51) ANSI Z9.2-60 Fundamentals Governing the Design and Operation of Local Exhaust Systems, IBR approved for §§ 1910.94(a)(4)(i) introductory text, (a)(6) introductory text, (b)(3)(ix), (b)(4)(i) and (ii), (c)(3)(i) introductory text, (c)(5)(iii)(b), and (c)(7)(iv)(a); 1910.261(a)(3)(xx), (g)(1)(i) and (iii), and (h)(2)(ii).
- (52) ANSI Z9.2-79 Fundamentals Governing the Design and Operation of Local Exhaust Systems, IBR approved for §1910.124(b)(4)(i).
- (53) ANSI Z12.12-68 Standard for the Prevention of Sulfur Fires and Explosions, IBR approved for 1910.261 (a)(3)(xxi), (d)(1)(i), (f)(2)(iv), and (g)(1)(i).
- (54) ANSI Z12.20-62 (R 69) Code for the Prevention of Dust Explosions in Woodworking and Wood Flour Manufacturing Plants, IBR approved for §1910.265(c)(20)(i).
- (55) ANSI Z21.30-64 Requirements for Gas Appliances and Gas Piping Installations, IBR approved for §1910.265(c)(15).
- (56) ANSI Z24.22-57 Method of Measurement of Real-Ear Attenuation of Ear Protectors at Threshold, IBR approved for §1910.261(a)(3)(xxii).
- (57) ANSI Z33.1–61 Installation of Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying, IBR approved for §§ 1910.94(a)(4)(i); 1910.261 (a)(3)(xxiii) and (f)(5); and 1910.265(c)(20)(i).
- (58) ANSI Z33.1-66 Installation of Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying, IBR approved for §1910.94(a)(2)(ii).
- (59) ANSI Z35.1–1968, Specifications for Accident Prevention Signs; IBR approved for §1910.261(c). Copies available for purchase from the IHS Standards Store, 15 Inverness Way East, Englewood, CO 80112; telephone: 1–877–413–5184; Web site: www.global.ihs.com.

- (60) ANSI Z41–1999, American National Standard for Personal Protection—Protective Footwear; IBR approved for §1910.136(b)(1)(ii). Copies of ANSI Z41–1999 are available for purchase only from the National Safety Council, P.O. Box 558, Itasca, IL 60143–0558; telephone: 1–800–621–7619; fax: 708–285–0797; Web site: http://www.nsc.org.
- (61) ANSI Z41–1991, American National Standard for Personal Protection—Protective Footwear; IBR approved for §1910.136(b)(1)(iii). Copies of ANSI Z41–1991 are available for purchase only from the National Safety Council, P.O. Box 558, Itasca, IL 60143–0558; telephone: 1–800–621–7619; fax: 708–285–0797; Web site: http://www.nsc.org.
- (62)-(63) [Reserved] (64) ANSI Z49.1-67 Safety in Welding and Cutting, IBR approved for §1910.252(c)(1)(iv) (A) and (B).
- (65) USAS Z53.1–1967 (also referred to as ANSI Z53.1–1967), Safety Color Code for Marking Physical Hazards, ANSI approved October 9, 1967; IBR approved for §1910.97(a) and 1910.145(d). Copies available for purchase from the IHS Standards Store, 15 Inverness Way East, Englewood, CO 80112; telephone: 1–877–413–5184; Web site: www.global.ihs.com.
- (66) ANSI Z535.1–2006 (R2011), Safety Colors, reaffirmed July 19, 2011; IBR approved for §§ 1910.97(a) and 1910.145(d). Copies available for purchase from the:
- (i) American National Standards Institute's e-Standards Store, 25 W 43rd Street, 4th Floor, New York, NY 10036; telephone: 212–642–4980; Web site: http://webstore.ansi.org/;
- (ii) IHS Standards Store, 15 Inverness Way East, Englewood, CO 80112; telephone: 877-413-5184; Web site: www.global.ihs.com; or
- (iii) TechStreet Store, 3916 Ranchero Dr., Ann Arbor, MI 48108; telephone: 877-699-9277; Web site: www.techstreet.com.
- (67) ANSI Z535.2–2011, Environmental and Facility Safety Signs, published September 15, 2011; IBR approved for §1910.261(c). Copies available for purchase from the:
- (i) American National Standards Institute's e-Standards Store, 25 W 43rd Street, 4th Floor, New York, NY 10036; telephone: 212–642–4980; Web site: http://webstore.ansi.org/;

- (ii) IHS Standards Store, 15 Inverness Way East, Englewood, CO 80112; telephone: 877–413–5184; Web site: www.global.ihs.com; or
- (iii) TechStreet Store, 3916 Ranchero Dr., Ann Arbor, MI 48108; telephone: 877–699–9277; Web site: www.techstreet.com.
- (68) ANSI Z54.1-63 Safety Standard for Non-Medical X-Ray and Sealed Gamma Ray Sources, IBR approved for §1910.252(d) (1)(vii) and (2)(ii).
- (69) ANSI Z87.1-2003, American National Standard Practice for Occupational and Educational Eye and Face Protection: IBR approved §§ 1910.133(b)(1)(i) and 1910.252(b)(2)(ii)(I)(I). Copies of ANSI Z87.1-2003 are available for purchase only from the American Society of Safety Engineers, 1800 East Oakton Street, Des Plaines, IL 60018-2187; telephone: 847-699-2929; or from the International Safety Equipment Association (ISEA), 1901 North Moore Street, Arlington, VA 22209-1762; telephone: 703-525-1695; fax: 703-528-2148; Web site: http://www.safetyequipment.org.
- (70) ANSI Z87.I—1989 (R-1998), American National Standard Practice for Occupational and Educational Eye and Face Protection; IBR approved for §1910.133(b) (1)(ii). Copies of ANSI Z87.I—1989 (R-1998) are available for purchase only from the American Society of Safety Engineers, 1800 East Oakton Street, Des Plaines, IL 60018—2187; telephone: 847–699–2929.
- (71) ANSI Z87.1–1989, American National Standard Practice for Occupational and Educational Eye and Face Protection; IBR approved for \$1910.133(b)(1)(iii). Copies of ANSI Z87.1–1989 are available for purchase only from the American Society of Safety Engineers, 1800 East Oakton Street, Des Plaines, IL 60018–2187; telephone: 847–699–2929.
- (72) ANSI Z88.2–1969, Practices for Respiratory Protection; IBR approved for §§ 1910.94(c)(6)(iii)(a), 1910.134(c); and 1910.261(a)(3)(xxvi), (b)(2), (f)(5), (g)(15)(v), (h)(2)(iii), (h)(2)(iv), and (i)(4).
- (73) American National Standards Institute (ANSI) Z89.1–2009, American National Standard for Industrial Head Protection, approved January 26, 2009; IBR approved for §1910.135(b)(1)(i). Copies of ANSI Z89.1–2009 are available for

purchase only from the International Safety Equipment Association, 1901 North Moore Street, Arlington, VA 22209–1762; telephone: 703–525–1695; fax: 703–528–2148; Web site: www.safetyequipment.org.

- (74) American National Standards Institute (ANSI) Z89.1–2003, American National Standard for Industrial Head Protection; IBR approved for §1910.135(b)(1)(ii). Copies of ANSI Z89.1–2003 are available for purchase only from the International Safety Equipment Association, 1901 North Moore Street, Arlington, VA 22209–1762; telephone: 703–525–1695; fax: 703–528–2148; Web site: www.safetyequipment.org.
- (75) American National Standards Institute (ANSI) Z89.1–1997, American National Standard for Personnel Protection—Protective Headwear for Industrial Workers—Requirements; IBR approved for §1910.135(b)(1)(iii). Copies of ANSI Z89.1–1997 are available for purchase only from the International Safety Equipment Association, 1901 North Moore Street, Arlington, VA 22209–1762; telephone: 703–525–1695; fax: 703–528–2148; Web site: www.safetyequipment.org.
- (76) ANSI Z41.1–1967 Men's Safety Toe Footwear; IBR approved for §1910.261(i)(4).
- (77) ANSI Z87.1–1968 Practice of Occupational and Educational Eye and Face Protection; IBR approved for §1910.261(a)(3)(xxv), (d)(1)(ii), (f)(5), (g)(1), (g)(15)(v), (g)(18)(ii), and (i)(4).
- (78) ANSI Z89.1–1969 Safety Requirements for Industrial Head Protection; IBR approved for \$1910.261(a)(3)(xxvii), (b)(2), (g)(15)(v), and (i)(4).
- (79) ANSI Z89.2–1971 Safety Requirements for Industrial Protective Helmets for Electrical Workers, Class B; IBR approved for §1910.268(i)(1).
- (f) The following material is available for purchase from the American Petroleum Institute (API), 1220 L Street NW, Washington DC 20005:
  - (1) [Reserved]
- (2) API 12B (May 1958) Specification for Bolted Production Tanks, 11th Ed., With Supplement No. 1, Mar. 1962, IBR approved for §1910.106(b)(1)(i)(a)(3).
- (3) API 12D (Aug. 1957) Specification for Large Welded Production Tanks, 7th Ed., IBR approved for  $\S 1910.106(b)(1)(i)(a)(3)$ .

- (4) API 12F (Mar. 1961) Specification for Small Welded Production Tanks, 5th Ed., IBR approved for §1910.106(b)(1)(i)(a)(3).
- (5) API 620, Fourth Ed. (1970) Including appendix R, Recommended Rules for Design and Construction of Large Welded Low Pressure Storage Tanks, IBR approved for §§ 1910.103(c)(1)(i)(a); 1910.106(b)(1)(iv)(b)(1); and 1910.111(d)(I) (ii) and (iii).
- (6) API 650 (1966) Welded Steel Tanks for Oil Storage, 3rd Ed., IBR approved for  $\S1910.106(b)(1)(iii)(a)(2)$ .
- (7) API 1104 (1968) Standard for Welding Pipelines and Related Facilities, IBR approved for §1910.252(d)(1)(v).
- (8) API 2000 (1968) Venting Atmospheric and Low Pressure Storage Tanks, IBR approved for §1910.106(b)(2)(iv)(b)(1).
- (9) API 2201 (1963) Welding or Hot Tapping on Equipment Containing Flammables, IBR approved for §1910.252(d)(1)(vi).
- (g) The following material is available for purchase from the American Society of Mechanical Engineers (ASME), United Engineering Center, 345 East 47th Street, New York, NY 10017:
- (1) ASME Boiler and Pressure Vessel Code, Sec. VIII, 1949, 1950, 1952, 1956, 1959, and 1962 Ed., IBR approved for  $\S 10.110$  (b)(10)(iii) (Table H–26), (d)(2) (Table H–31); (e)(3)(i) (Table H–32), (h)(2) (Table H–34); and 1910.111(b)(2)(vi);
- (2) ASME Code for Pressure Vessels, 1968 Ed., IBR approved for §§ 1910.106(i)(3)(i); 1910.110(g)(2)(iii)(b)(2); and 1910.217(b)(12);
- (3) ASME Boiler and Pressure Vessel Code, Sec. VIII, 1968, IBR approved for §§ 1910.103; 1910.104(b)(4)(ii); 1910.106 (b)(1)(iv)(b)(2) and (i)(3)(ii); 1910.107; 1910.110(b)(11) (i)(b) and (iii)( $\alpha$ )(1); 1910.111(b)(2) (i), (ii), and (iv); and 1910.169(a)(2) (i) and (ii);
- (4) ASME Boiler and Pressure Vessel Code, Sec. VIII, Paragraph UG-84, 1968, IBR approved for §1910.104 (b)(4)(ii) and (b)(5)(iii);
- (5) ASME Boiler and Pressure Vessel Code, Sec. VIII, Unfired Pressure Vessels, Including Addenda (1969), IBR approved for §§ 1910.261; 1910.262; 1910.263(i)(24)(ii);

- (6) Code for Unfired Pressure Vessels for Petroleum Liquids and Gases of the API and the ASME, 1951 Ed., IBR approved for §1910.110(b)(3)(iii); and
- (7) ASME B56.6–1992 (with addenda), Safety Standard for Rough Terrain Forklift Trucks, IBR approved for §1910.266(f)(4).
- (h) Copies of the standards listed below in this paragraph (h) are available for purchase from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959; Telephone: 610-832-9585; Fax: 610-832-9555; Email: seviceastm.org; Web site: http://www.astm.org. Copies of historical standards or standards that ASTM does not have may be purchased from Information Handling Services, Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112; 1-800-854-7179; Telephone: Email: global@ihs.com; Web sites: http://global.ihs.com or http://www.store.ihs.com.
- (1) ASTM A 47–68, Malleable Iron Castings, IBR approved for §1910.111.
- (2) ASTM A 53-69, Welded and Seamless Steel Pipe, IBR approved for §§ 1910.110 and 1910.111.
- (3) ASTM A 126-66, Gray Iron Casting for Valves, Flanges and Pipe Fitting, IBR approved for §1910.111.
- (4) ASTM A 391-65 (ANSI G61.1-1968), Alloy Steel Chain, IBR approved for \$1910.184.
- (5) ASTM A 395–68, Ductile Iron for Use at Elevated Temperatures, IBR approved for §1910.111.
- (6) ASTM B 88–66A, Seamless Copper Water Tube, IBR approved for §1910.252.
- (7) ASTM B 88-69, Seamless Copper Water Tube, IBR approved for §1910.110.
- (8) ASTM B 117-64, Salt Spray (Fog) Test, IBR approved for §1910.268.
- (9) ASTM B 210-68, Aluminum-Alloy Drawn Seamless Tubes, IBR approved for §1910.110.
- (10) ASTM B 241–69, Standard Specifications for Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube, IBR approved for §1910.110.
- (11) ASTM D 5-65, Test for Penetration by Bituminous Materials, IBR approved for §1910.106.
- (12) ASTM D 56-70, Test for Flash Point by Tag Closed Tester, IBR approved for §1910.106.
- (13) ASTM D 56-05, Standard Test Method for Flash Point by Tag Closed

- Cup Tester, Approved May 1, 2005, IBR approved for Appendix B to §1910.1200.
- (14) ASTM D 86-62, Test for Distillation of Petroleum Products, IBR approved for §§ 1910.106 and 1910.119.
- (15) ASTM D 86-07a, Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure, Approved April 1, 2007, IBR approved for Appendix B to §1910.1200.
- (16) ASTM D 88-56, Test for Saybolt Viscosity, IBR approved for § 1910.106.
- (17) ASTM D 93-71, Test for Flash Point by Pensky Martens, IBR approved for §1910.106.
- (18) ASTM D 93–08, Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester, Approved Oct. 15, 2008, IBR approved for Appendix B to §1910.1200.
- (19) ASTM D 240-02 (Reapproved 2007), Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, Approved May 1, 2007, IBR approved for Appendix B to §1910.1200.
- (20) ASTM D 323-68, Standard Test Method of Test for Vapor Pressure of Petroleum Products (Reid Method), IBR approved for §1910.106.
- (21) ASTM D 445-65, Test for Viscosity of Transparent and Opaque Liquids, IBR approved for §1910.106.
- (22) ASTM D 1078-05, Standard Test Method for Distillation Range of Volatile Organic Liquids, Approved May 15, 2005, IBR approved for Appendix B to §1910.1200.
- (23) ASTM D 1692-68, Test for Flammability of Plastic Sheeting and Cellular Plastics, IBR approved for §1910.103.
- (24) ASTM D 2161-66, Conversion Tables for SUS, IBR approved for §1910.106.
- (25) ASTM D 3278-96 (Reapproved 2004) E1, Standard Test Methods for Flash Point of Liquids by Small Scale Closed-Cup Apparatus, Approved November 1, 2004, IBR approved for Appendix B to §1910.1200.
- (26) ASTM D 3828-07a, Standard Test Methods for Flash Point by Small Scale Closed Cup Tester, Approved July 15, 2007, IBR approved for Appendix B to §1910.1200.
- (27) ASTM F-2412-2005, Standard Test Methods for Foot Protection, IBR approved for §1910.136.

- (28) ASTM F-2413-2005, Standard Specification for Performance Requirements for Protective Footwear, IBR approved for §1910.136.
- (i) The following material is available for purchase from the American Welding Society (AWS), 550 NW, LeJeune Road, P.O. Box 351040, Miami FL 33135:
  - (1)-(2) [Reserved]
- (3) AWS B3.0-41 Standard Qualification Procedure, IBR approved for \$1910.67(c)(5)(i).
- (4) AWS D1.0-1966 Code for Welding in Building Construction, IBR approved for §1910.27(b)(6).
- (5) AWS D2.0-69 Specifications for Welding Highway and Railway Bridges, IBR approved for §1910.67(c)(5)(iv).
- (6) AWS D8.4-61 Recommended Practices for Automotive Welding Design, IBR approved for §1910.67(c)(5)(ii).
- (7) AWS D10.9-69 Standard Qualification of Welding Procedures and Welders for Piping and Tubing, IBR approved for §1910.67(c)(5)(iii).
- (j) The following material is available for purchase from the Department of Commerce:
- (1) Commercial Standard, CS 202–56 (1961) "Industrial Lifts and Hinged Loading Ramps," IBR approved for §1910.30(a)(3).
- (2) Publication "Model Performance Criteria for Structural Fire Fighters' Helmets," IBR approved for §1910.156(e)(5)(i).
- (k) The following material is available for purchase from the Compressed Gas Association (CGA), 1235 Jefferson Davis Highway, Arlington, VA 22202:
- (1) CGA C-6 (1968) Standards for Visual Inspection of Compressed Gas Cylinders, IBR approved for §1910.101(a).
- (2) CGA C-8 (1962) Standard for Requalification of ICC-3HT Cylinders, IBR approved for §1910.101(a).
- (3) CGA G-1-2009 Acetylene, Twelfth Edition, IBR approved for §1910.102(a). Copies of CGA Pamphlet G-1-2009 are available for purchase from the: Compressed Gas Association, Inc., 4221 Walney Road, 5th Floor, Chantilly, VA 20151; telephone: (703) 788-2700; fax: (703) 961-1831; email: cga@cganet.com.
- (4) CGA G-7.1 (1966) Commodity Specification, IBR approved for  $\S1910.134(d)(1)$ .

- (5) CGA G-8.1 (1964) Standard for the Installation of Nitrous Oxide Systems at Consumer Sites, IBR approved for §1910.105.
- (6) CGA P-1 (1965) Safe Handling of Compressed Gases, IBR approved for §1910.101(b).
- (7) CGA P-3 (1963) Specifications, Properties, and Recommendations for Packaging, Transportation, Storage and Use of Ammonium Nitrate, IBR approved for §1910.109(i)(1)(ii)(b).
- (8) CGA S-1.1 (1963) and 1965 Addenda. Safety Release Device Standards—Cylinders for Compressed Gases, IBR approved for \$1910.101(c); 1910.103(c)(1)(iv)(a)(2).
- (9) CGA S-1.2 (1963) Safety Release Device Standards, Cargo and Portable Tanks for Compressed Gases, IBR approved for \$1910.101(c); 1910.103(c)(1)(iv)(a)(2).
- (10) CGA S-1.3 (1959) Safety Release Device Standards-Compressed Gas Storage Containers, IBR approved for §§ 1910.103(c)(1)(iv)(a)(2);
- 1910.104(b)(6)(iii); and 1910.111(d)(4)(ii)(b).
- (11) CGA 1957 Standard Hose Connection Standard, IBR approved for §1910.253(e) (4)(v) and (5)(iii).
- (12) CGA and RMA (Rubber Manufacturer's Association) Specification for Rubber Welding Hose (1958), IBR approved for §1910.253(e)(5)(i).
- (13) CGA 1958 Regulator Connection Standard, IBR approved for §1910.253(e) (4)(iy) and (6).
- (1) The following material is available for purchase from the Crane Manufacturer's Association of America, Inc. (CMAA), 1 Thomas Circle NW, Washington DC 20005:
- (1) CMAA Specification 1B61, Specifications for Electric Overhead Traveling Cranes, IBR approved for §1910.179(b)(6)(i).
  - (2) [Reserved]
- (m) The following material is available for purchase from the General Services Administration:
- (1) GSA Pub. GG-B-0067b, Air Compressed for Breathing Purposes, or Interim Federal Specifications, Apr. 1965, IBR approved for §1910.134(d)(4).
- (2) [Reserved]
- (n) The following material is available for purchase from the Department of Health and Human Services:

- (1) Publication No. 76–120 (1975), List of Personal Hearing Protectors and Attenuation Data, IBR approved for §1910.95 App. B.
  - (2) [Reserved]
- (0) The following material is available for purchase from the Institute of Makers of Explosives (IME), 420 Lexington Avenue, New York, NY 10017:
- (1) IME Pamphlet No. 17, 1960, Safety in the Handling and Use of Explosives, IBR approved for §§1910.261 (a)(4)(iii) and (c)(14)(ii).
  - (2) [Reserved]
- (p) The following material is available for purchase from the National Electrical Manufacturer's Association (NEMA):
- (1) NEMA EW-1 (1962) Requirements for Electric Arc Welding Apparatus, IBR approved for §§ 1910.254(b)(1).
  - (2) [Reserved]
- (q) The following material is available for purchase from the National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02269; Telephone: 800–344–3555 or 617–770–3000; Fax: 1–800–593–6372 or 1–508–895–8301; Email: custserv@nfpa.org; Web site: http://www.nfpa.org.
- (1) NFPA 30 (1969) Flammable and Combustible Liquids Code, IBR approved for §1910.178(f)(1).
- (2) NFPA 32-1970 Standard for Dry Cleaning Plants, IBR approved for §1910.106(j)(6)(i).
- (3) NFPA 33-1969 Standard for Spray Finishing Using Flammable and Combustible Material, IBR approved for §1910.94(c)(2).
- (4) NFPA 34–1966 Standard for Dip Tanks Containing Flammable or Combustible Liquids, IBR approved for §1910.124(b)(4)(iv).
- (5) NFPA 34–1995 Standard for Dip Tanks Containing Flammable or Combustible Liquids, IBR approved for §1910.124(b)(4)(ii).
- (6) NFPA 35–1970 Standard for the Manufacture of Organic Coatings, IBR approved for §1910.106(j)(6)(ii).
- (7) NFPA 36-1967 Standard for Solvent Extraction Plants, IBR approved for §1910.106(j)(6)(iii).
- (8) NFPA 37–1970 Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines, IBR approved for §§ 1910.106(j)(6)(iv) and 1910.110 (b)(20)(iv)(c) and (e)(11).

- (9) NFPA 51B-1962 Standard for Fire Protection in Use of Cutting and Welding Processes, IBR approved for \$1910.252(a)(1) introductory text.
- (10) NFPA 54–1969 Standard for the Installation of Gas Appliances and Gas Piping, IBR approved for \$1910.110(b)(20)(iv)(a).
- (11) NFPA 54A-1969 Standard for the Installation of Gas Piping and Gas Equipment on Industrial Premises and Certain Other Premises, IBR approved for §1910.110(b)(20)(iv)(b).
- (12) NFPA 58–1969 Standard for the Storage and Handling of Liquefied Petroleum Gases (ANSI Z106.1–1970), IBR approved for §§1910.110 (b)(3)(iv) and (i)(3) (i) and (ii); and 1910.178(f)(2).
- (13) NFPA 59-1968 Standard for the Storage and Handling of Liquefied Petroleum Gases at Utility Gas Plants, IBR approved for §§1910.110 (b)(3)(iv) and (i)(2)(iv).
- (14) NFPA 62–1967 Standard for the Prevention of Dust Explosions in the Production, Packaging, and Handling of Pulverized Sugar and Cocoa, IBR approved for §1910.263(k)(2)(i).
- (15) NFPA 68-1954 Guide for Explosion Venting, IBR approved for §1910.94(a)(2)(iii).
  - (16) [Reserved]
- (17) NFPA 78-1968 Lightning Protection Code, IBR approved for §1910.109(i)(6)(ii).
- (18) NFPA 80-1968 Standard for Fire Doors and Windows, IBR approved for §1910.106(d)(4)(i).
- (19) NFPA 80-1970 Standard for the Installation of Fire Doors and Windows, IBR approved for §1910.253(f)(6)(i)(I).
- (20) NFPA 86A-1969 Standard for Oven and Furnaces Design, Location and Equipment, IBR approved for §§ 1910.107 (j)(1) and (l)(3) and 1910.108 (b)(2) and (d)(2).
- (21) NFPA 91–1961 Standard for the Installation of Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying (ANSI Z33.1–61), IBR approved for §1910.107(d)(1).
- (22) NFPA 91–1969 Standards for Blower and Exhaust Systems, IBR approved for §1910.108(b)(1).

- (23) NFPA 96–1970 Standard for the Installation of Equipment for the Removal of Smoke and Grease Laden Vapors from Commercial Cooking Equipment, IBR approved for §1910.110(b)(20)(iv)(d).
- (24) NFPA 101-1970 Code for Life Safety From Fire in Buildings and Structures, IBR approved for §1910.261(a)(4)(ii).
- (25) NFPA 101–2009, Life Safety Code, 2009 edition, IBR approved for §§ 1910.34, 1910.35, 1910.36, and 1910.37.
- (26) NFPA 203M-1970 Manual on Roof Coverings, IBR approved for §1910.109(i)(1)(iii)(c).
- (27) NFPA 251-1969 Standard Methods of Fire Tests of Building Construction and Materials, IBR approved for §§ 1910.106 (d)(3)(ii) introductory text and (d)(4)(i).
- (28) NFPA 302-1968 Fire Protection Standard for Motor-Craft (Pleasure and Commercial), IBR approved for §1910.265(d)(2)(iv) introductory text.
- (29) NFPA 385–1966 Recommended Regulatory Standard for Tank Vehicles for Flammable and Combustible Liquids, IBR approved for §1910.106(g)(1)(i)(e)(1).
- (30) NFPA 496–1967 Standard for Purged Enclosures for Electrical Equipment in Hazardous Locations, IBR approved for §1910.103(c)(1)(ix)(e)(1).
- (31) NFPA 505-1969 Standard for Type Designations, Areas of Use, Maintenance, and Operation of Powered Industrial Trucks, IBR approved for §1910.110(e)(2)(iv).
- (32) NFPA 566–1965 Standard for the Installation of Bulk Oxygen Systems at Consumer Sites, IBR approved for §§ 1910.253 (b)(4)(iv) and (c)(2)(v).
- (33) NFPA 656-1959 Code for the Prevention of Dust Ignition in Spice Grinding Plants, IBR approved for §1910.263(k)(2)(i).
- (34) NFPA 1971–1975 Protective Clothing for Structural Fire Fighting, IBR approved for §1910.156(e)(3)(ii) introductory text.
- (35) NFPA 51A (2001) Standard for Acetylene Cylinder Charging Plants, IBR approved for \$1910.102(b) and (c). Copies of NFPA 51A-2001 are available for purchase from the: National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-

- 7471; telephone: 1-800-344-35557; e-mail: custserv@nfpa.org.
- (36) NFPA 51A (2006) Standard for Acetylene Cylinder Charging Plants, IBR approved for §1910.102(b) and (c). Copies of NFPA 51A-2006 are available for purchase from the: National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471; telephone: 1-800-344-35557; e-mail: custerv@nfpa.org.
- (37) NFPA 30B, Code for the Manufacture and Storage of Aerosol Products, 2007 Edition, Approved August 17, 2006, IBR approved for Appendix B to \$1910.1200.
- (r) The following material is available for purchase from the National Food Plant Institute, 1700 K St. NW., Washington, DC 20006:
- (1) Definition and Test Procedures for Ammonium Nitrate Fertilizer (Nov. 1964), IBR approved for §1910.109 Table H-22, ftn. 3.
  - (2) [Reserved]
- (s) The following material is available for purchase from the National Institute for Occupational Safety and Health (NIOSH):
- (1) Registry of Toxic Effects of Chemical Substances, 1978, IBR approved for §1910.20(c)(13)(i) and appendix B.
- (2) Development of Criteria for Fire Fighters Gloves; Vol. II, part II; Test Methods, 1976, IBR approved for §1910.156(e)(4)(i) introductory text.
- (3) NIOSH Recommendations for Occupational Safety and Health Standards (Sept. 1987), IBR approved for §1910.120 PEL definition.
- (t) The following material is available for purchase from the Public Health Service:
- (1) U.S. Pharmacopeia, IBR approved for §1910.134(d)(1).
- (2) Publication No. 934 (1962), Food Service Sanitation Ordinance and Code, part V of the Food Service Sanitation Manual, IBR approved for §1910.142(i)(1).
- (u) The following material is available for purchase from the Society of Automotive Engineers (SAE), 485 Lexington Avenue, New York, NY 10017:
- (1) SAE J185, June 1988, Recommended Practice for Access Systems for Off-Road Machines, IBR approved for §1910.266(f)(5)(i).

- (2) SAE J231, January 1981, Minimum Performance Criteria for Falling Object Protective Structure (FOPS), IBR approved for §1910.266(f)(3)(ii).
- (3) SAE J386, June 1985, Operator Restraint Systems for Off-Road Work Machines, IBR approved for §1910.266(d)(3)(iv).
- (4) SAE J397, April 1988, Deflection Limiting Volume-ROPS/FOPS Laboratory Evaluation, IBR approved for §1910.266(f)(3)(iv).
- (5) SAE 765 (1961) SAE Recommended Practice: Crane Loading Stability Test Code, IBR approved for §1910.180 (c)(1)(iii) and (e)(2)(iii)(a).
- (6) SAE J1040, April 1988, Performance Criteria for Rollover Protective Structures (ROPS) for Construction, Earthmoving, Forestry and Mining Machines, IBR approved for § 1910.266(f)(3)(ii).
- (v) The following material is available for purchase from the Fertilizer Institute, 1015 18th Street NW, Washington, DC 20036:
- (1) Standard M-1 (1953, 1955, 1957, 1960, 1961, 1963, 1965, 1966, 1967, 1968), Superseded by ANSI K61.1-1972, IBR approved for §1910.111(b)(1) (i) and (iii).
  - (2) [Reserved]
- (w) The following material is available for purchase from Underwriters Laboratories (UL), 207 East Ohio Street, Chicago, IL 60611:
- (1) UL 58-61 Steel Underground Tanks for Flammable and Combustible Liquids, 5th Ed., IBR approved for  $\S 1910.106(b)(1)(iii)(a)(1)$ .
- (2) UL 80-63 Steel Inside Tanks for Oil-Burner Fuel, IBR approved for \$1910.106(b)(1)(iii)(a)(1).
- (3) UL 142-68 Steel Above Ground Tanks for Flammable and Combustible Liquids, IBR approved for \$1910.106(b)(1)(iii)(a)(1).
- (x) The following material is available for purchase from the: International Code Council, Chicago District Office, 4051 W. Flossmoor Rd., Country Club Hills, IL 60478; telephone: 708-799-2300, x3-3801; facsimile: 001-708-799-4981; e-mail: order@iccsafe.org.
- (1) IFC-2009, International Fire Code, copyright 2009, IBR approved for §§ 1910.34, 1910.35, 1910.36, and 1910.37.
  - (2) [Reserved]
- (y)(1) The following materials are available for purchase from the Inter-

- national Standards Organization (ISO) through ANSI, 25 West 43rd Street, Fourth Floor, New York, NY 10036–7417; Telephone: 212–642–4980; Fax: 212–302–1286; Email: info@ansi.org; Web site: http://www.ansi.org.
- (2) Documents not available in the ANSI store may be purchased from:
- (i) Document Center Inc., 111 Industrial Road, Suite 9, Belmont, 94002; Telephone: 650–591–7600; Fax: 650–591–7617; Email: info@document-center.com; Web site: www.document-center.com.
- (ii) DECO—Document Engineering Co., Inc., 15210 Stagg Street, Van Nuys, CA 91405; Telephone: 800–645–7732 or 818–782–1010; Fax: 818–782–2374; Email: doceng@doceng.com; Web site: www.doceng.com
- (iii) Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112; Telephone: 1–800–854–7179 or 303–397–7956; Fax: 303–397–2740; Email: global@ihs.com; Web sites: http://global.ihs.com or http://www.store.ihs.com;
- (iv) ILI Infodisk, Inc., 610 Winters Avenue, Paramus, NJ 07652; Telephone: 201–986–1131; Fax: 201–986–7886; Email: sales@ili-info.com; Web site: www.ili-info.com.
- (v) Techstreet, a business of Thomson Reuters, 3916 Ranchero Drive, Ann Arbor, MI 48108; Telephone: 800–699–9277 or 734–780–8000; Fax: 734–780–2046; Email: techstreet.service@thomsonreuters.com; Web site: www.Techstreet.com.
- (3) ISO 10156:1996 (E), Gases and Gas Mixtures—Determination of Fire Potential and Oxidizing Ability for the Selection of Cylinder Valve Outlets, Second Edition, Feb. 15, 1996, IBR approved for Appendix B to §1910.1200.
- (4) ISO 10156-2:2005 (E), Gas cylinders—Gases and Gas Mixtures—Part 2: Determination of Oxidizing Ability of Toxic and Corrosive Gases and Gas Mixtures, First Edition, Aug. 1, 2005, IBR approved for Appendix B to §1910.1200.
- (5) ISO 13943:2000 (E/F), Fire Safety—Vocabulary, First Edition, April, 15, 2000, IBR approved for Appendix B to §1910.1200.
- (z)(1) The following document is available for purchase from United Nations Publications, Customer Service, c/o National Book Network, 15200 NBN Way, PO Box 190, Blue Ridge Summit, PA 17214; telephone: 1–888–254–4286; fax:

1–800–338–4550; email: unpublications@nbnbooks.com. Other distributors of United Nations Publications include:

- (i) Bernan, 15200 NBN Way, Blue Ridge Summit, PA 17214; telephone: 1–800–865–3457; fax: 1–800–865–3450; email: customercare@bernan; Web site: http://www.bernan.com; and
- (ii) Renouf Publishing Co. Ltd., 812 Proctor Avenue, Ogdensburg, NY 13669– 2205; telephone: 1–888–551–7470; Fax: 1– 888–551–7471; email: orders@renoufbooks.com; Web site: http:// www.renoufbooks.com.
- (2) UN ST/SG/AC.10/Rev.4, The UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Fourth Revised Edition, 2003, IBR approved for Appendix B to \$1910.1200.

[39 FR 23502, June 27, 1974]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting §1910.6, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and on GPO Access.

# § 1910.7 Definition and requirements for a nationally recognized testing laboratory.

- (a) Application. This section shall apply only when the term nationally recognized testing laboratory is used in other sections of this part.
- (b) Laboratory requirements. The term nationally recognized testing laboratory (NRTL) means an organization which is recognized by OSHA in accordance with appendix A of this section and which tests for safety, and lists or labels or accepts, equipment or materials and which meets all of the following criteria:
- (1) For each specified item of equipment or material to be listed, labeled or accepted, the NRTL has the capability (including proper testing equipment and facilities, trained staff, written testing procedures, and calibration and quality control programs) to perform:
- (i) Testing and examining of equipment and materials for workplace safety purposes to determine conformance with appropriate test standards: or
- (ii) Experimental testing and examining of equipment and materials for workplace safety purposes to deter-

mine conformance with appropriate test standards or performance in a specified manner.

- (2) The NRTL shall provide, to the extent needed for the particular equipment or materials listed, labeled, or accepted, the following controls or services:
- (i) Implements control procedures for identifying the listed and labeled equipment or materials;
- (ii) Inspects the run of production of such items at factories for product evaluation purposes to assure conformance with the test standards; and
- (iii) Conducts field inspections to monitor and to assure the proper use of its identifying mark or labels on products:
- (3) The NRTL is completely independent of employers subject to the tested equipment requirements, and of any manufacturers or vendors of equipment or materials being tested for these purposes; and,
- (4) The NRTL maintains effective procedures for:
- (i) Producing creditable findings or reports that are objective and without bias; and
- (ii) Handling complaints and disputes under a fair and reasonable system.
- (c) Test standards. An appropriate test standard referred to in §1910.7(b)(1) (i) and (ii) is a document which specifies the safety requirements for specific equipment or class of equipment and is:
- (1) Recognized in the United States as a safety standard providing an adequate level of safety, and
- (2) Compatible with and maintained current with periodic revisions of applicable national codes and installation standards, and
- (3) Developed by a standards developing organization under a method providing for input and consideration of views of industry groups, experts, users, consumers, governmental authorities, and others having broad experience in the safety field involved, or
- (4) In lieu of paragraphs (c) (1), (2), and (3), the standard is currently designated as an American National Standards Institute (ANSI) safety-designated product standard or an American Society for Testing and Materials (ASTM) test standard used for evaluation of products or materials.